As its first class graduates this summer, Duke-NUS Graduate Medical School is flying high. page 3
The power of partnership

Little more than eight decades ago, a new hospital, medical school, and nursing school opened in North Carolina, with simple but ambitious goals—to serve the community fully, to make scientific discoveries, and to provide outstanding education. In less than the span of a human lifetime, with a clear vision and hard work from many talented individuals, that fledgling entity grew into Duke Medicine, one of the world’s leading academic medical institutions. In 2005, Duke helped to launch another young institution, born of equally outrageous ambition and with equally great promise: Duke-NUS Graduate Medical School. A collaboration with the National University of Singapore, Duke-NUS was founded to develop a new generation of physician-scientists who could be true, transnational leaders in medical research, education, and patient care.

This summer, the school graduates its first class of new physicians—and I see that class as the embodiment of an exciting new model of medical education, innovative research, and institutional partnership. Duke-NUS shares many of the same ideals we count as essential to our own success here at Duke Medicine. The student body is wonderfully diverse—its 186 MD students hail from 21 countries. Its curriculum, while based on that of our own School of Medicine, has also introduced innovative and forward-thinking ideas, incorporating a unique team-based learning model designed to produce leaders. Its cross-continent collaborations with institutions both public and private are helping to accelerate discovery and to move it from theory into practice. You can read much more about Duke-NUS in the special report in this issue of DukeMed Magazine.

Singapore is a crown jewel in Duke Medicine’s collaborations, but it’s not the only one that we have pursued. Our collaborations today range from global to local. Here at home, we have long worked hand in hand with hospitals and other providers who share our goal of improving care through collaborations such as the Duke Infection Control Outreach Network, the Duke Oncology Network, and the Duke Heart Network. We are continuing to forge new partnerships to strengthen health care delivery and quality in our local communities, such as our recent venture with LifePoint Hospitals. On an international level, our partnerships extend across the globe; from Tanzania to China to India, Duke is making lasting connections and working to advance medicine for all people. The benefits of these partnerships are manifold.

As we share our strengths in research, education, care delivery, and service, we learn from our partners’ unique innovations and efficiencies, and together we are able to better care for the members of our communities.

We can be proud of what we are accomplishing through all of these collaborations. At the same time, we must look forward to the next 80 years and ask ourselves how we can continue to thrive as an institution and to better the health of the world. We know that we are moving toward one global society, where communication is instantaneous and barriers between cultures and continents are dissolving. We know people and ideas are more mobile than ever before—and that no institution can afford to stagnate in isolation. Like Duke’s founders, we may not know the exact ways in which medicine will evolve in the future, but we can continue to pursue the possibilities—to be willing to take risks, to build upon the mission and entrepreneurial spirit that have made us the institution we are, and to join forces with others who share our values.

I myself have been a beneficiary of these values. Born in Shanghai, I was accepted to study at McGill University in Canada when I was 18; with hard work, a world of possibilities unfolded before me. I feel fortunate for the opportunities I have had—but I also feel compelled to make sure that the same opportunities will be there for current and future generations of young students. As one of the world’s leaders in academic medicine, we have the responsibility to pay these possibilities forward, to look for new ways in which Duke Medicine can serve the world, at home and abroad, today and for generations to come.

At this point in history—both the history of Duke Medicine and the history of humankind—we cannot afford to operate within the confines of our own backyard. We must come together as a society, both local and global, to surmount the challenges we all face and take the next step toward a better, brighter future. That is just what the Classes of 2011 are doing, both at Duke and at Duke-NUS, and I am immensely proud of the role we have played in giving them their start.

Victor J. Dzau, MD
Chancellor for Health Affairs, Duke University
President and CEO, Duke University Health System
James B. Duke Professor of Medicine

VICTOR J. DZAU, MD, TALKS WITH MEDICAL STUDENTS AT DUKENEUS IN SINGAPORE. THE SCHOOL IS GRADUATING ITS FIRST CLASS THIS SUMMER.
Just a few short years after launch, Duke and the National University of Singapore’s bold venture to start up a brand-new medical school has surpassed all expectations. As Duke-NUS prepares to graduate its first class of MDs and embarks on the second phase of its growth, DukeMed Magazine takes a look at the school’s breathtaking ascent and bright future.
The Rapid Rise of Duke-NUS

This summer, the first class of medical students at Duke-NUS Graduate Medical School in Singapore officially becomes its first graduates—receiving the first joint degrees ever to be granted by its parent schools, Duke University and the National University of Singapore (NUS).

It’s a major milestone in the short but action-packed history of Duke-NUS, which has grown in a mere six years from a promise on paper into a dynamic institution that is well on its way to becoming one of the leading medical schools in Asia.

By any account, the school’s achievements are remarkable. Since its 2005 launch, it has gone from 16 faculty and staff to more than 850, including 83 regular-rank faculty—many of whom are internationally recognized biomedical researchers. The student body has soared from an entering class of 26 in 2007 to 186 MD and 12 PhD students today, from 21 countries and more than 40 undergraduate institutions including Oxford, Cambridge, Johns Hopkins, Yale, Harvard, Peking University, and Stanford.

It has created robust research programs, with faculty attracting more than S$100 million (US$81 million) in competitive research funding and publishing more than 370 papers in international peer-reviewed journals. The school has also generated innovative models of medical education that are drawing interest from programs across the globe.

“Duke has built many relationships with strategic partners around the world, but we will always see Duke-NUS as the crown jewel of our international activities,” says Victor J. Dzau, MD, Duke’s chancellor for health affairs. “It represents a distinctive achievement by multiple committed and trusting partners—Duke, NUS, and the Singapore government—that is unparalleled.”

In fact, the school has zoomed past the initial goals its partners set for it, achieving milestones that had been...
established for its first seven years in just a little over four. In an era when many US universities are attempting to forge global academic collaborations, “Duke-NUS is a real success story,” says Michael Merzen, MD, director of the Duke Global Health Institute and vice chancellor for Duke-NUS affairs. “What has been accomplished there since its founding is tremendous.”

“In terms of university partnerships on a global scale, there are not many like Duke-NUS,” agrees Patrick Casey, PhD, senior vice dean for research at Duke-NUS, who was among the school’s founding administrators. “In terms of medical school partnerships, there are none.”

What has made the difference, he says, is commitment: “The commitment of Duke leaders, Duke faculty, leaders in Singapore—commitment at the highest level. There were many times we could have stumbled, but everyone was committed to succeed and because of that we were able to work through the challenges.”

The commitment needed to build a medical school from scratch was no small thing. In 2000, the government of Singapore—a city-state of 5 million people—had launched an ambitious S$3-billion Biomedical Sciences Initiative aimed at establishing the country as the biomedical hub of Southeast Asia. As part of that effort, Singapore sought to create an American-style graduate-level medical school aimed at producing research-trained physician-scientists, complementing its existing British-model undergraduate medical school at the National University of Singapore. Singapore approached Duke as a potential partner in establishing the new school based on its unique research-oriented medical school curriculum and its track record in producing leaders in academic medicine, research, industry, and clinical care delivery.

While the initiative was to be funded entirely by Singapore, it would require a significant investment of time and expertise from Duke. “Many people were skeptics at first,” recalls R. Sanders Williams, MD, president of The J. David Gladstone Institutes, who served as dean of the Duke University School of Medicine from 2001 to 2007, and in 2005 became the founding dean of Duke-NUS. “I myself wondered how on earth we could support a serious program halfway around the world when there were so many important things to do in Durham. But over time, as we got to know the remarkable people in Singapore and better envision the opportunities, that skepticism turned into excitement. We became convinced that this partnership could greatly advance medical care, education, and research not only in Singapore but also for Duke.”

“The benefits outweighed the hesitations,” agrees Rebecca Trent Kirkland, MD, a Duke University School of Medicine alumna and member of the Duke family, who served on the Duke University Board of Trustees during the years leading up to the 2005 partnership agreement and later visited the school on behalf of the Duke University Health System Board of Directors. “We knew that some of our faculty would need to spend a good bit of time in Singapore, but we have been able to weather that and it’s actually been beneficial, as our faculty have been able to ally with NUS faculty in many areas. In the end, we believed that this partnership would broaden the reach of the university and provide wonderful opportunities for our students and faculty as well as the students in Singapore. It’s truly a partnership where we can grow together.”

As the new school took shape, so did a new world of possibilities for global collaboration. Respected Duke faculty relocated to Singapore to help get the school off the ground, including Casey and Ranga Krishnan, MB ChB, then chair of psychiatry and behavioral sciences, who would succeed Williams as dean of Duke-NUS in 2008. They were joined by other distinguished faculty from Singapore and all over the world—including early recruits such as Sir Colin Blakemore, former chair of the British Biomedical Research Council (comparable to the NIH), David Virshup, MD, a noted cancer researcher and pediatric oncologist, and Duane Gubler, ScD, a globally recognized infectious diseases researcher. “We began with a few really good people and like began to attract like,” says Krishnan. “Along with the significant scientific resources available in Singapore, I believe that has been a major reason faculty have been drawn to Duke-NUS—having strong potential partners in place for research collaborations, not only within the school but with other research groups in Singapore as well as with faculty at Duke in Durham. It’s an environment conducive to good science.”

To focus the school’s efforts, leaders from Singapore and Duke early on identified five signature areas of research emphasis—emerging infectious diseases, cancer and stem cell biology, neuroscience and behavioral disorders, cardiovascular and metabolic disorders, and health services and systems research. Rather than being lodged in traditional academic departments, faculty have been recruited into these five specialized programs. “We identified these areas because they represent the major

“Our partnership in Duke-NUS underscores our strong commitment to a global mission in research and education that will ultimately speed the translation of scientific discoveries to the bedside, and close the gap in health care disparities worldwide.”

—Victor J. Dzau, MD, CHANCELLOR FOR HEALTH AFFAIRS, DUKE UNIVERSITY
health needs of Singapore and Southeast Asia, while also capitalizing on Duke’s strengths in research,” explains Casey. As notable faculty from Singapore, Duke, and all over the world have converged at the school, they have formed productive new research partnerships in those key arenas (see “Research,” page eight).

Progress has been rapid on the education front, as well. The school had a strong foundation to begin with, since the Duke-NUS curriculum is based on that of Duke University School of Medicine—which condenses basic-science study into one year instead of the usual two, giving students earlier clinical experience as well as an entire year devoted to independent research. With the fresh start in Singapore, however, leaders took advantage of the opportunity to innovate, introducing a new, technology-supported model of team-based learning called TeamLEAD that’s been hailed as the future of medical education—and a critical factor in the school’s success (see “Education,” page six).

“As a faculty, we’re asking ourselves how we can promote creativity and critical thinking and how course material will actually be used down the line in the students’ professional lives,” says Doyle Graham, MD, PhD, former dean of medical education at Duke University School of Medicine, who now directs the TeamLEAD-based Body and Disease course at Duke-NUS. “It’s the most powerful learning situation I’ve ever been in—I consider it the highlight of my teaching career.”

Duke-NUS students have proven the power of the approach, scoring well above the mean for all US medical students on both the clinical knowledge and basic science United States Medical Licensing Exams. In 2010, the school expanded its academic offerings, opening an Integrated Biology and Medicine PhD program designed to produce leaders in translational research. Although the initial 2005 partnership agreement between Duke and NUS was to last seven years, the school’s round success prompted both partners to renew their agreement early and enthusiastically, committing in November 2010 to another five-year tie-up (as it’s called in the local parlance).

“I would say that this partnership has greatly exceeded our already high initial expectations,” said NUS president Tan Chorh Chuan at the signing ceremony. “The second phase…promises to be even more exciting and productive.”

A primary goal for the partnership’s next half-decade is to more closely integrate Duke-NUS with SingHealth, Singapore’s largest health care group, which serves more than 4.3 million patients a year. The school is located on the same campus as SingHealth’s 1,500-bed Singapore General Hospital as well as national heart, cancer, and other specialty centers, providing fertile

The history of Duke-NUS: A timeline

2000
Singapore launches a S$3-billion Biomedical Sciences Initiative designed to make the country the biomedical hub of Asia.

2001
A Ministry of Education-appointed Medical Education Review Panel recommends that Singapore establish a graduate medical school to produce the highly trained physician-scientists needed to support the Biomedical Sciences Initiative.

2002
A delegation of leaders from Singapore visit Duke to discuss a partnership to establish the school.

JUNE 2003
Duke University and the National University of Singapore sign a Memorandum of Understanding indicating their willingness to partner in establishing Singapore’s first graduate medical school.

APRIL 2005
At a ceremony in Singapore, Duke University and the National University of Singapore formalize their partnership to establish the new medical school.

JULY 2005
Duke-NUS Interim Campus is established on the Outram campus, home to Singapore General Hospital. The first staff are recruited in the summer.

AUGUST 2005
R. Sanders Williams, MD, dean of the Duke University School of Medicine, is officially named founding dean of Duke-NUS.

JANUARY 2007
The Duke University Board of Trustees approves the award of a joint MD degree from both Duke University and the National University of Singapore for the graduates of Duke-NUS.

Duke-NUS receives a S$80 million gift from the estate of the late Tan Sri Khoo Teck Puat to grow the school’s biomedical research initiatives. The school later names its permanent building in memory of the philanthropist.
ground for collaboration, says Krishnan. “Our faculty and students are already deeply engaged in these institutions. Many of our faculty serve on their medical staff, our students perform clinical rotations there, and we work together to conduct clinical research.”

For example, he notes, Duke-NUS helped establish the SingHealth Investigational Medicine Unit, a 32-bed research unit which opened last year to conduct early-phase clinical studies. Duke-NUS also founded an Office of Clinical Sciences to provide specialized training to third-year medical students and to SingHealth clinicians interested in clinical research. The office is led by vice dean John Rush, MD, who also serves as CEO of the Singapore Clinical Research Institute (modeled after, and in collaboration with, the Duke Clinical Research Institute).

“Our charge in phase 2 of the partnership is to build on this foundation to create a true academic medical center, which will help us connect research efforts inside the school to clinical care delivery and develop next-generation treatments and technologies,” Krishnan says.

Already, Duke-NUS and SingHealth leaders have worked together to create academic departments within SingHealth institutions. Graduate medical education is also being strengthened; recently, the US Accreditation Council for Graduate Medical Education (ACGME) established a new international arm that is working with Singapore’s Ministry of Health to accredit 38 residency programs at SingHealth and other Singapore hospitals by 2012. These are the first residency programs to be accredited by ACGME-International standards, says William E. Rodak, PhD, ACGME-I’s vice president for international accreditation. “We’re contributing to improving graduate medical education outside of the United States and in turn, health care in other parts of the world,” he says.

The new programs will provide the next step for this summer’s graduating class, almost all of whom will complete residency training in Singapore.

“These are wonderful students, and they will be excellent physicians—bright, accomplished, committed to service, and with a truly global perspective,” Krishnan says. “We can be very proud of them as the first to graduate under the Duke-NUS banner.”

“The graduation gives us an opportunity to pause and truly appreciate the success of this venture,” adds Kirkland. “It makes me think of the words of the Indenture that originally established Duke University, which called us to ‘provide real leadership in the educational world’ and to teach what would ‘most help to develop our resources, increase our wisdom, and promote human happiness.’ Well, with Duke-NUS, that’s just what we’ve done.”

AUGUST 2007
The first 26 Duke-NUS students begin class.

JULY 2008
Ranga Krishnan, MB ChB, chair of the Department of Psychiatry at Duke, is named dean of Duke-NUS.

SEPTEMBER 2009
The 11-story, 280,000-square-foot Khoo Teck Puat building is dedicated as the permanent home of Duke-NUS.

MARCH 2010
Michael Merson, MD, director of the Duke Global Health Institute, becomes Duke Medicine’s vice chancellor for Duke-NUS affairs.

AUGUST 2010
Duke-NUS launches a PhD program in Integrated Biology and Medicine that focuses on the preparation of translational research scientists. Twelve students enroll in the inaugural class.

NOVEMBER 2010
Duke and the National University of Singapore representatives sign a phase 2 agreement to launch their next five years of collaboration in medical education and research at Duke-NUS.

AUGUST 2011
Duke-NUS graduates its first class of new MDs.
Leading with TeamLEAD

From the prime minister of Kazakhstan to representatives from Harvard, more than 100 delegations from all over the world have visited Duke-NUS to learn more about the school's innovative approach to medical education.

Called TeamLEAD (Learn, Engage, Apply, Develop), the method is a radical departure from traditional lecture-based teaching formats. Instead, students are responsible for learning the bulk of the material before class, using recorded lectures from Duke University School of Medicine along with reading assignments from textbooks and medical journals. Once in class, they are tested both individually and in small groups, so instructors can focus the rest of the session on areas of weakness. The teams then work together, with “open-book” access to medical references, to solve clinically oriented questions related to the material.

“The best doctor is no longer the doctor with the best memory,” says Robert Kamei, MD, vice dean for education at Duke-NUS. “In an age when information is available anywhere, instantaneously, we want to provide students with the skills they’ll need in the future—the ability to find the latest information and apply it to clinical practice. To succeed at the highest level, they need to be able to both work in teams and provide leadership, so our curricular approach focuses on developing those abilities, not just rote memorization.”

Although the concept of team-based learning was introduced in business schools in the 1980s, TeamLEAD is the first time it has been adapted for medical education. “It’s difficult to introduce a whole new approach within an existing school,” says Dean Ranga Krishnan. “In Singapore we had the opportunity to ask ourselves, with everything we know now about medicine, research, and teaching, what is the best way to train our students?”

“There are significant advantages to the TeamLEAD approach,” agrees Edward Buckley, MD, vice dean for education at Duke medical school, who helped develop the Duke-NUS curriculum. “It makes more efficient use of the instructor’s time and is better suited to the way adults learn, which is by applying new information in a practical context. It’s also very good preparation for clinical practice, which is increasingly moving toward multidisciplinary, team-based care.”

In fact, the approach is now being adopted in pilot programs at “Duke Durham,” as the US school is known in Singapore. This year, first-year medical students in the Brain and Behavior, Molecules and Cells, and Body and Diseases courses participated in team-based learning exercises, and “we plan to adapt more of the methodology going forward, especially after we move into our new Learning Center,” says Buckley.

“The opportunity to exchange these kinds of ideas and share experiences is a very rich and rewarding part of this partnership.”
Like their counterparts in Durham, Duke-NUS students participate in a signature year devoted to independent research—sometimes even with their counterparts in Durham. Eight Duke-NUS students completed their research at Duke this year, including Cheryl Lin (left), who studied with Eric Peterson, MD (far left), an associate director of the Duke Clinical Research Institute. “Duke-NUS has opened up so many opportunities for me to explore,” says Lin, who is also a Duke undergraduate alumna. “I like the fact that students can take the initiative to get the most out of their education—I think it will help us become better doctors.”

“People don’t always realize it, but Duke has two medical schools—Duke University School of Medicine, which is among the very best American schools, and Duke-NUS, which has rapidly become one of the leading schools in Asia. That gives us wonderful opportunities to bring faculty together across the globe to make new discoveries and educate future leaders.” —Michael Merson, MD
VICE CHANCELLOR FOR DUKE-NUS AFFAIRS AND DIRECTOR, DUKE GLOBAL HEALTH INSTITUTE
The opening of Duke-NUS has opened up new opportunities for researchers in both Durham and Singapore to advance biomedical science on a global scale. Nearly a third of Duke-NUS faculty hold joint appointments at Duke, and many other Duke faculty have taken advantage of the rich possibilities for collaboration with scientists on the other side of the world.

“Singapore is an appealing place to conduct research,” says Patrick Casey, PhD, senior vice dean for research at Duke-NUS. “The country has made a tremendous investment in biomedical science, which has attracted top researchers internationally and provided opportunities to access unique technologies, such as a chronobiology suite for sleep research that’s one of the few of its kind in the world. Singapore also offers access to a well-annotated patient population with different ethnicities and lifestyles than in North Carolina, so it’s a great place to conduct comparative clinical studies.”

Among the dozens of Duke-Singapore collaborations to date include research focused on:

**Dengue fever:** A team of researchers at Duke and Duke-NUS led by Mariano Garcia-Blanco, MD, PhD, used gene-silencing technologies to identify dozens of proteins the dengue fever virus relies on—identifying promising new targets to develop antiviral drugs for the devastating mosquito-borne disease. Dengue has been one of the first major research concentrations of Duke-NUS; the school’s program in infectious diseases is led by Duane Gubler, ScD, considered the world’s foremost expert on dengue fever.

**Metabolic disorders:** Duke-NUS’s Scott Summers, PhD, is studying how a type of lipids called ceramides contributes to the development of insulin resistance and diabetes, working with Christopher Newgard, PhD, of Duke’s Stedman Nutrition and Metabolism Center.

**Parkinson’s disease:** Tso-Pang Yao, PhD, of Duke’s Department of Pharmacology and Cancer Biology, and Kah Leong Lim, PhD, of Duke-NUS and Singapore’s National Neuroscience Institute, have elucidated the role of certain disease-causing mutations in the Parkin gene—contributing to understanding of the causes of neuro-degeneration in Parkinson’s disease.

**Aging:** Researchers Angelique Chan of Duke-NUS and Truls Ostbye, MD, PhD, have conducted population-based and longitudinal studies related to the care and well-being of the elderly in Singapore, one of the most rapidly aging countries in Asia.

**Sleep deprivation:** Neuroscientists led by Michael Chee, MD, of Duke-NUS and Scott Huettel, PhD, of Duke’s Center for Interdisciplinary Decision Science found that sleep deprivation can alter strategic preferences in risky decision-making—increasing sensitivity to gains while decreasing sensitivity to losses.

These global collaborations are just a start; over the past year, Duke and Duke-NUS have hosted a series of symposia that bring faculty from Duke and Singapore together to discuss shared research interests and generate ideas for joint projects in areas from heart disease to health services research.

In addition, more than 50 Duke and Duke-NUS faculty have joined a new Duke Cardiovascular Research Center established to advance global basic research objectives. The center is led by Thomas Coffman, MD, chief of Duke’s division of nephrology, who also directs Duke-NUS’s Cardiovascular and Metabolic Disorders research program.

“The ties between Duke and Singapore provide a unique opportunity to bridge researchers who are literally a half world apart,” he says. “We hope to create an environment that amplifies the quantity and quality of research across both campuses.”
Duke-NUS has formed a wide network of research partners, from faculty at Duke and NUS to government agencies and health care organizations to pharmaceutical and biotech companies, with a focus on translating discoveries from the lab bench to the bedside.

“Duke-NUS connects Duke to what is truly a global health care research enterprise in one of the fastest-growing places in the world.” —Ranga Krishnan, MB ChB, DEAN OF DUKE-NUS

Neuroscientist Michael Chee is one of many Duke-NUS faculty who have conducted joint research with Duke scientists. The school’s signature research program in neurosciences is led by Dale Purves, MD, former chair of neurobiology at Duke.

This spring, faculty members from Duke visited Singapore to discuss collaborations focused on Health Services and Systems Research, a signature program at Duke-NUS led by David Matchar, MD (left)—who also directs the Center for Clinical Health Policy Research at Duke. “Although Singapore is a small country, it experiences many of the same problems we do in the US—a rise in obesity, an aging population,” says Eric Finkelstein, PhD (right), who also holds joint appointments at both schools. “It’s great to do work that supports both of our needs.”

David Virshup, MD, heads the Duke-NUS signature research program in Cancer and Stem Cell Biology, which focuses on cancers prevalent in Asia—such as gastric cancer, chronic myeloid leukemia, hepatocellular carcinoma, and breast and renal cancer.
Meet the pioneers

In August 2007, a couple dozen twenty-somethings from all over the world started classes in the temporary quarters of a brand-new medical school. With bachelor’s, master’s, and PhD degrees from a host of leading universities, such as NUS, Nanyang Technological University, Cornell, the University of Sydney, and Imperial College London, they had been carefully chosen from a pool of nearly 400 applicants eager to be part of the new Duke-NUS Graduate Medical School.

As the pioneer class, the students played a key role in establishing the new school. “We have been able to witness the school start at the interim campus, the completion of the new campus and opening by Prime Minister Lee Hsien Loong, and the solid growth of the research community at Duke-NUS,” says Dixon Grant, a magna cum laude graduate of Utah State University and member of the inaugural class. “I also served as an academic representative and was able to see the professors discuss ways to deal with issues and improve each year. It is truly remarkable what our professors have been able to accomplish in terms of both starting a new curriculum and successfully training us to be doctors.”

The Class of 2011 has shined academically, with excellent performance on the rigorous United States Medical Licensing Examination and in individual research. Of the 24 graduates, 21 have submitted abstracts and 13 have published research papers, many in tier 1 journals. They have also demonstrated commitment to using their medical training to make a difference, initiating several community-service projects. “I want to be part of a concerted effort by local clinician-scientists to take clinical research to the next level and improve clinical care for diseases peculiar to our part of the world,” says Vincent Tay, a graduate of the National University of Singapore and member of the Duke-NUS class of 2011. “As graduates of Duke-NUS, I know that we will not just make a name in clinical service and research, but also become leaders and movers in wider community for social causes.”

After graduation this summer, the students will go on to residency training in a wide variety of specialties. See below for details, and page 12 for coverage of the pioneer class’s graduation celebration.
Camp Simba was started in 2009 by students from Duke-NUS and Yong Loo Lin School of Medicine to provide a few days of fun for children of cancer patients in Singapore.

A diverse bunch, Duke-NUS students hail from countries from England to Zimbabwe. Although competitive scholars, less than half are from premedical backgrounds, and many have already accumulated professional experience. Pictured above are a few members of the student body, whose peers include PhDs, a dentist, accomplished athletes, nationally ranked debaters, and engineers.

100% of the 2011 graduating class passed the United States Medical Licensing Examination, at a higher mean score than the US average. 50% have published their third-year research.

Duke medical student Luke Bulthuis (right) conducted his third-year research at Duke-NUS, studying diabetes and insulin resistance at the cellular level and in animal models with endocrinologist Scott Summers, PhD. To date, six Duke medical students have traveled to Singapore to complete part of their studies at Duke-NUS.

Another pioneer class: In August 2010, 12 students became the first to enroll in Duke-NUS’s new PhD program in Integrated Biology and Medicine, which focuses on translational research and grooming students to become research team leaders. Above, PhD student Neo Shu Hui works with cancer researcher Koji Itahana, PhD.

DUKE-NUS MD STUDENTS BY THE NUMBERS*

186 MD students
57% females
43% males
24.25 average age
16% of MD students hold master’s or PhD degrees
21 countries represented: Singapore, Malaysia, Indonesia, Vietnam, Burma, Philippines, Sri Lanka, Pakistan, Bangladesh, India, China, Taiwan, Nepal, Zimbabwe, Japan, South Korea, United Kingdom, Poland, Greece, Canada, United States

*Demographic information is for 2011–2014 MD classes as of time of admission.

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Celebrating the first graduating class of Duke-NUS

On May 28, 2011, Duke-NUS celebrated the achievements of its first class of medical students with a pre-graduation celebration and Hippocratic Oath and hooding ceremony.

“There are very few people who ever earn the privilege of being true pioneers in their fields of endeavor, but there is no question that each of you whom we honor today has achieved that distinction,” Duke Chancellor for Health Affairs Victor J. Dzau, MD, told the graduating class at the ceremony. “You have paved the way for future generations of clinicians, clinician-scientists, and leaders in medicine who will study and graduate from this outstanding institution.”

The official presentation of degrees will take place on July 4, as part of National University of Singapore graduation ceremonies, with Duke University President Richard H. Brodhead in attendance.

“At Duke-NUS I feel like I’ve gotten a cultural education as well as a medical education, and I think that’s going to be increasingly important. The world’s only getting smaller and smaller, and the better we understand how to work together the more we can accomplish.”

—Dixon Grant, DUKE-NUS CLASS OF 2011
Alliances across Asia

Since the 2005 launch of Duke-NUS Graduate Medical School in Singapore, Duke Medicine has established ties with institutions across the Asian continent. “Tremendous opportunities have opened for Duke Medicine because of our success in Singapore,” says Robert Taber, PhD, vice chancellor for corporate and venture development at Duke. “Our involvement in Duke-NUS has raised Duke’s profile in the region significantly.”

To better evaluate these growing opportunities and to develop and implement its broader global strategy, Duke Medicine created a new organization, Duke Medicine Global, in 2009. Headed by Krishna Udayakumar, MD, the office coordinates a range of collaborations, including:

**India:**
- Duke Medicine in February finalized its joint venture partnership with Medanta–The Medicity, a 1,500-bed conglomeration of multispecialty institutes near New Delhi, to establish the Medanta Duke Research Institute (MDRI). Opening this fall, MDRI seeks to transform the global framework for clinical development and evaluation of human biology, diseases, drugs, and devices by leveraging cutting-edge technologies and applying systems biology and molecular medicine to clinical research. The MDRI’s 60-bed, 27,000-square-foot clinical research unit will collaborate with similar units at Duke and in Singapore, forming a global network for studies of new interventions in genetically diverse populations.
- Duke Medicine has signed a Memorandum of Understanding to collaborate with Tata Medical Center, a 167-bed cancer hospital in Kolkata, to advance cancer care, research, and education. As an initial step, Duke will provide radiation oncology training to visiting faculty from India and also explore collaborations in information technology related to cancer care.
- Duke Clinical Research Institute partnered with Kaplan EduNeering in February to provide high-quality, Internet-based clinical research training. Initially focused on India, the partners plan to expand to China and other areas where there are shortages of well-trained clinical research staff.

**China:** Duke’s extensive collaborations in China include a seven-year partnership with Peking University Health Science Center (PUHSC) to advance clinical care, medical management practices, and global health, including a joint Global Health Diploma organized by the Duke Global Health Institute (DGHI) and PUHSC. Duke and Peking University faculty are leading Fogarty International Center-funded training programs in stroke research and bioethics. DGHI and the George Institute for Global Health share an NIH Center for Excellence grant which supports research to prevent hypertension and its complications in populations living in rural areas of China, while other Duke-led pilot programs focus on obesity prevention.

**Kazakhstan:** Duke and Astana Medical University recently collaborated to provide 15 MBA students from Kazakhstan with health-care management training through the Duke Medicine Global Healthcare Management Development Program; Duke Medicine Global will also provide strategic guidance to Nazarbayev University and National Medical Holding as they work to develop an integrated academic health system in Kazakhstan.

“By working closely with carefully selected partners who share our vision and values, in Asia and around the globe, Duke Medicine is advancing its goals of improving medicine and health worldwide,” says Victor J. Dzau, MD, chancellor for health affairs.

Learn more about Duke’s many global collaborations in education, research, policy engagement, and service at globalhealth.duke.edu.
ON THE COVER: This illustration brings together the colors of Duke and the National University of Singapore; the 24 orange wing feathers of the bird-shaped kite represent the 24 graduates of the first class of Duke-NUS Graduate Medical School. In Singapore, kite-flying is a traditional and still-popular form of sport and artistic expression—local and international kite festivals are quite competitive, and colorful kites can often be seen soaring through the skies over Singapore.

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